

Pareto Optimality



- **Idea:** sometimes, one outcome o is at least as good for every agent as another outcome o' , and there is some agent who strictly prefers o to o'
 - in this case, it seems reasonable to say that o is better than o'
 - we say that o **Pareto-dominates** o' .

Definition (Pareto Optimality)

An outcome o^* is **Pareto-optimal** if there is no other outcome that Pareto-dominates it.

- can a game have more than one Pareto-optimal outcome?
- does every game have at least one Pareto-optimal outcome?

Pareto Optimal Outcomes in Example Games

	Left	Right
Left	1, 1	0, 0
Right	0, 0	1, 1



Pareto Optimal Outcomes in Example Games

	Left	Right
Left	1, 1	0, 0
Right	0, 0	1, 1

	B	F
B	2, 1	0, 0
F	0, 0	1, 2

	Heads	Tails
Heads	1, -1	-1, 1
Tails	-1, 1	1, -1



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	<i>C</i>	<i>D</i>
<i>C</i>	-1, -1	-4, 0
<i>D</i>	0, -4	-3, -3

